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The Challenges in Meeting OSD's Obligation and Expenditure Rate Goals: *A Closer Look at Potential Causal Factors, Their Groupings, and How They Modulate*

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Managing an acquisition program in the DoD is a complicated process. The turbulence created by funding instability can make it even more difficult. Nonetheless, to help program offices maintain their overall funding execution pace, the Office of the Secretary of Defense (OSD) instituted Obligation and Expenditure rate goals over two decades ago. For numerous reasons, acquisition program managers have found it difficult to meet established Obligation and Expenditure rate goals. For purposes of this article, and based on Defense Acquisition University and OSD subject matter expertise, the authors looked more closely at the potential causal factors that could be interfering with the achievement of these goals.

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Several months ago, Dr. Nancy Spruill, director of Acquisition Resources and Analysis, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, solicited support from the Defense Acquisition University (DAU) to help uncover the causal factors that could be interfering with the attainment of OSD's Obligation and Expenditure rate goals. To learn more about the intervening obstacles, DAU, with assistance from OSD, developed a comprehensive survey that queried experienced and high-level DoD personnel involved in a weapon program's decision chain. The data might also indicate the prevalence of any significant variances among the factors that could be undermining program execution itself. Results of the study (Higbee, Tremaine, Seligman, & Arwood, 2013) were presented to Assistant Secretary of Defense for Acquisition Katrina McFarland and other senior OSD personnel.

Research Methodology

Two hundred and twenty-nine DoD personnel responded to this survey. The respondents were comprised of program office personnel (program managers, deputy program managers, budget and financial managers, and contracting officers); program executive officers and their chief financial officers; and a variety of senior staff at OSD including Headquarters Financial Management senior staff and Senior Acquisition Executive (SAE) staff (Table 1). Because several functional areas reflected lower response rates, a more detailed analysis of the causal factors was restricted to an aggregate sample size given the confidence levels required to draw any inferences or conclusions.

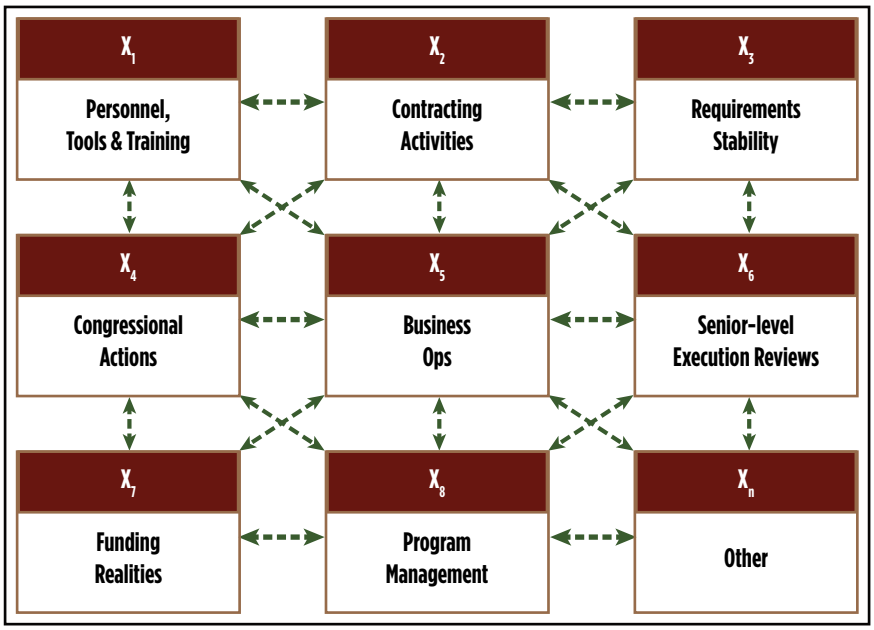
TABLE 1. INDIVIDUAL RESPONDENT GROUPS

Survey Respondent Details									
	ACAT Levels			Respondent Groups			Totals		
Respondent Distribution[a]	I	II	III	Program Office[b]	PEO[c]	Senior Staff[d]	Responses	Queried	Response Rate
Total	91	28	23	142	63	24	229	698	33%

[a] Includes sampling from all DoD Components and several Defense Agencies
[b] Program managers, deputy program managers, business-financial management (BFM) managers, deputy BFM managers, and contracting officers
[c] Program executive officers (PEO), deputy PEOs, and their chief financial officers
[d] Headquarters, Financial Management and Senior Acquisition Executive staff

Respondents ranked the impact of 64 factors under nine categories (Figure 1). The researchers then assessed the rankings using a top box (TB) three methodology (i.e., the percentage of 5, 6, and 7 responses on a Likert-like scale from 1–7). Since the frequency of occurrence for some factors could also be contributing to the interference, the researchers included an additional selection (e.g., daily, weekly, monthly, etc.) to isolate any potential ignition areas for any factor.

FIGURE 1. FACTOR CATEGORIES

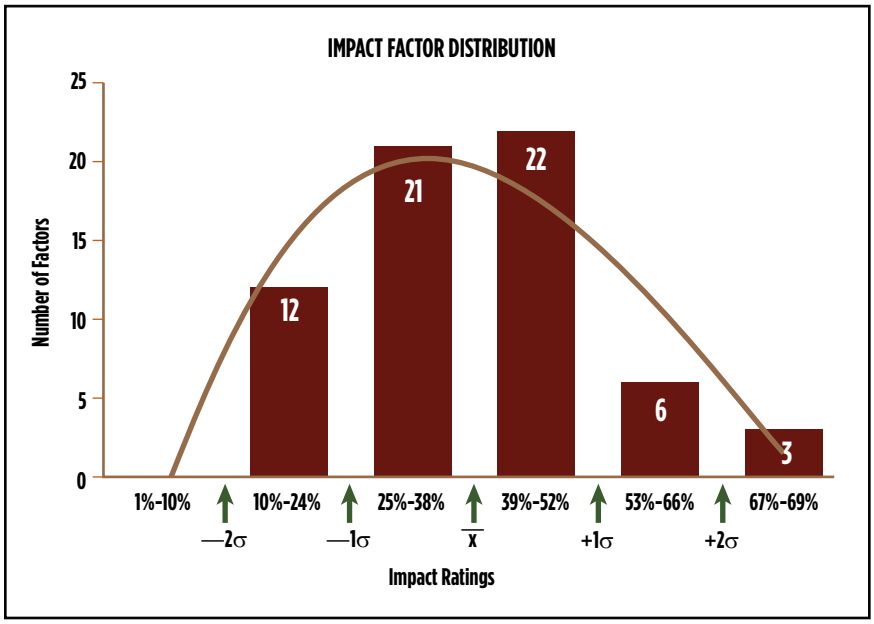


Discussion

Factor Distribution

Figure 2 shows the distribution of all 64 factors assessed. *Three* factors reported an impact rating of two standard deviations above the mean (denoted by $+2\sigma$); *six* factors reported an impact rating of one standard deviation above the mean (denoted by $+1\sigma$); and *22* factors rose above an average impact rating (denoted by $\bar{x}$). The remaining 33 factors fell below $\bar{x}$.

FIGURE 2. RESPONDENT HISTOGRAM



Nineteen of the *22* factors measured for frequency of occurrence resulted in an impact rating above 39 percent. Sometimes, just one occurrence of that factor appeared to have a significant impact.

Causal Factors Rank Ordered

Table 2 lists the relative ranking of all 64 factors in the context of TB in descending order. This ranking provides a comprehensive view of all factors although the remaining discussion in this article addresses only the factors above $\bar{x}$. One particular factor, "Unrealistic, overly optimistic spend plans" (F^{10}), is important to note since it serves as a

written forecast of a program's funding needs and initially establishes Obligation and Expenditure projections. However, spend plans are also subjected to so many real world eventualities that updating them can become a full-time job.

Factors and Respondent Groups

Figure 3 accounts for the 31 factors above the mean and by respondent group as depicted in Table 1. The 31 factors were the only ones further evaluated in this study unless a factor shifted above $\bar{x}$ after a more detailed correlation delineation (e.g., Acquisition Category [ACAT]) levels, military components, position, etc.). Unexpectedly, the individual factors showed widespread perception disparities among the respondent groups for the factors that fell below $+2\sigma$. After analyzing the specific individual factors among all the respondent groups, seven of the 31 factors had an unusually large σ. As a result of these conspicuous gaps, the authors turned to the qualitative data and watched for any strong correlations (e.g., positive quantitative correlation coefficients (r) > 0.7) to better understand the reasons for the differences as well as the influence of any intervening and/or moderating factor couplings. The remaining discussion addresses the 31 impact factors in descending order from highest to lowest.

Factors Ranked Two Standard Deviations Above the Mean (+ 2σ)

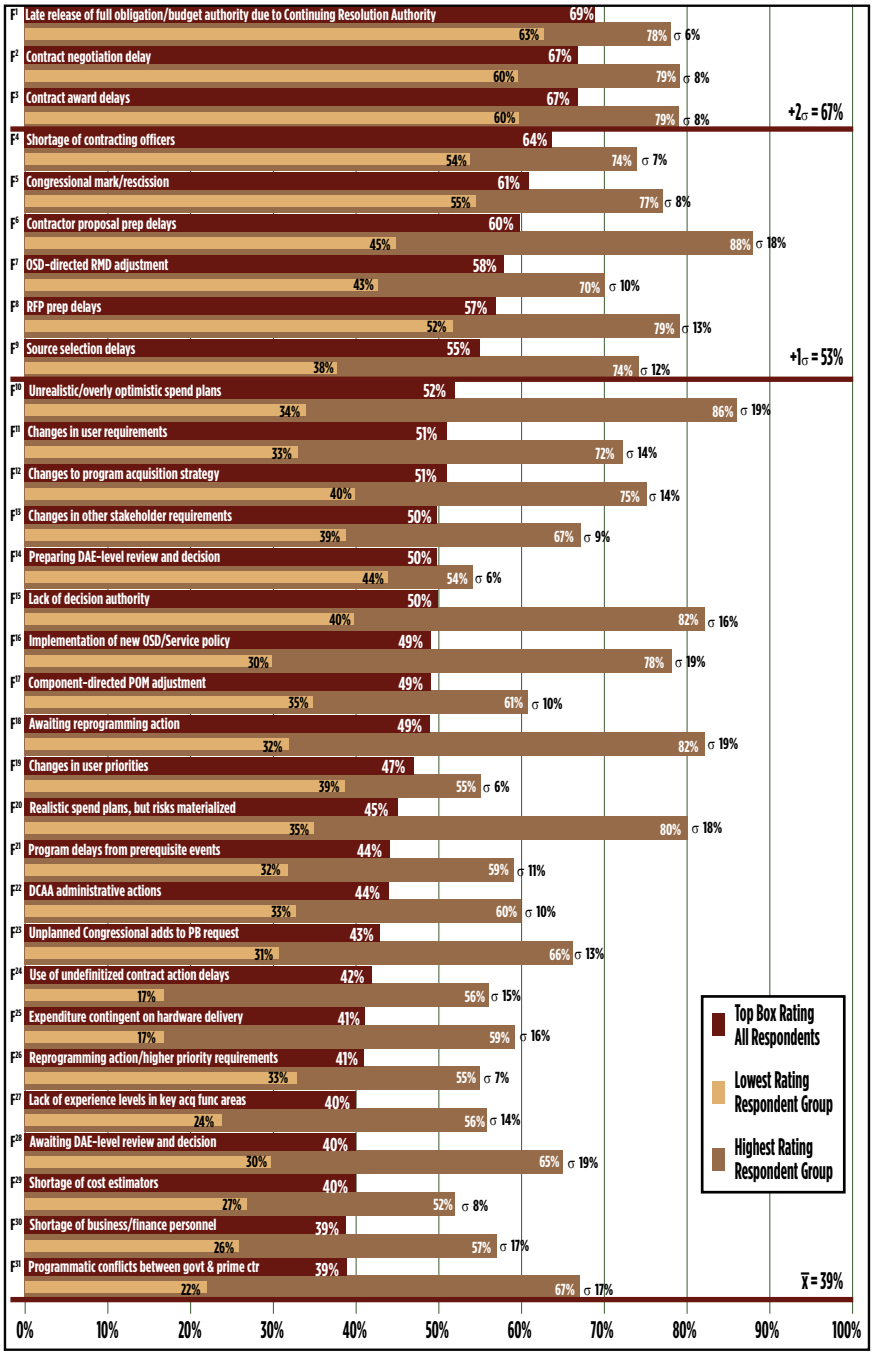
In Figure 3, Late release of full obligation/budget authority due to Continuing Resolution Authority (CRA) (F^1), Contract negotiations' delays (F^2), and Contract award delays (F^3) all rose above 2σ where 67 percent or more of the respondents claimed they had the highest adverse impact of all factors measured. The occurrence of CRA had the most significant negative impact to Obligation and Expenditure rates. It also had one of the smallest variances (σ) among the respondent groups. Even with the expectation that CRA might prevail and the subsequent planning that followed for such a likely event, many PMs pointed to an overly conservative and slow internal vetting process posture that created additional obstacles in meeting OSD goals. In their responses to qualitative questions, several PMs recommended using some sort of "CRA variable" to temporarily offset the consequences of CRA if the required funds were not released as originally projected. Next in rank order were contract negotiations and contract award delays. The respondents emphasized that DoD could fix the problem more readily since unlike CRA, these factors were under internal control. When asked what could be done

TABLE 2. IMPACT FACTOR RATINGS IN AGGREGATE DESCENDING ORDER

	Factors Rated by Adverse Impact	TB	$\bar{x}$	σ	
F^1	Late release of full obligation budget authority due to Continuing Resolution Authority (CRA)	69%	5.29	2.41	
F^2	Contract negotiation delays	67%	5,06	2.59	
F^3	Contract award delays	67%	5.00	2.56	+2 σ = 67%
F^4	Shortage of contracting officers	64%	4.79	2.58	
F^5	Congressional mark/rescission	61%	4.87	2.65	
F^6	Contractor proposal prep delays	60%	4.87	2.59	
F^7	OSD-directed Resource Management Decision (RMD)	58%	4.50	2.63	
F^8	Request for Proposal (RFP) prep delays	57%	4.63	2.46	
F^9	Source selection delays	55%	4.44	2.53	+1 σ = 53%
F^{10}	Unrealistic, overly optimistic spend plans	52%	4.30	2.44	
F^{11}	Changes in user requirements	51%	4.16	2.43	
F^{12}	Changes to program acquisition strategy	51%	4.41	2.52	
F^{13}	Changes in other stakeholder requirements	50%	4.32	2.34	
F^{14}	Preparing Defense Acquisition Executive (DAE)-level review and decision	50%	4.15	2.18	
F^{15}	Lack of decision authority at expected levels	50%	4.22	2.52	
F^{16}	Implementation of new OSD/Service policy	49%	4.20	2.59	
F^{17}	Component-directed Program Objective Memorandum (POM) adjustment	49%	4.26	2.51	
F^{18}	Awaiting reprogramming action	49%	4.23	2.44	
F^{19}	Changes in user priorities	47%	4.00	2.38	
F^{20}	Realistic spend plans, but risks materialized	45%	4.00	2.21	
F^{21}	Program delays from additional development, testing, or other prerequisite events	44%	4.09	2.35	
F^{22}	Defense Contract Audit Agency (DCAA) administrative actions	44%	3.92	2.61	
F^{23}	Unplanned Congressional adds to Program Baseline (PB) request	43%	3.90	2.41	
F^{24}	Use of undefinitized contract action delays	42%	3.73	2.56	
F^{25}	Expenditure contingent on hardware delivery	41%	3.92	2.41	
F^{26}	Loss of funding through reprogramming action to higher priority requirements to program executive officer (PEO) portfolio	41%	3.89	2.46	
F^{27}	Lack of experience levels in key acquisition functional areas	40%	3.90	2.30	
F^{28}	Awaiting DAE-level review and decision	40%	3.50	2.42	
F^{29}	Shortage of cost estimators	40%	3.67	2.37	
F^{30}	Shortage of business/finance personnel	39%	3.66	2.32	
F^{31}	Programmatic conflicts between government and prime contractor	39%	3.66	2.32	$\bar{x}$ = 39%

	Factors Rated by Adverse Impact Continued	TB	$\bar{x}$	σ	
F32	Preparing Service Acquisition Executive/Component Acquisition Executive (SAE/CAE)-level review and decision	38%	3.74	2.02	
F33	Delays in contractor payment due to late invoices	37%	3.67	2.35	
F34	Unobligated prior year funding not adequately factored	36%	3.57	2.23	
F35	Component Comptroller Withhold	35%	3.58	2.34	
F36	Defense Contract Management Agency (DCMA) administrative actions	35%	3.42	2.36	
F37	Redirection of contractor efforts	35%	3.47	2.23	
F38	OSD Comptroller Withhold	34%	3.43	2.37	
F39	Shortage of technical/engineering/test personnel	34%	3.51	2.17	
F40	Shortage of auditors	33%	3.17	2.43	
F41	Slower burn rate than expected due to unfavorable Schedule Performance Index	33%	3.25	2.14	
F42	Awaiting SAE/CAE-level review and decision	32%	3.33	2.30	
F43	SAE/CAE/Component-directed reprogramming	32%	3.27	2.30	
F44	Rescission	32%	3.16	2.46	
F45	Changes in systems specs	31%	3.30	2.03	
F46	Tenure of program manager (PM) and others in key positions	31%	3.11	2.18	
F47	Holding award/incentive fees in commitment for future obligation	29%	3.23	2.35	
F48	Inadequate training	29%	3.29	2.13	
F49	Shortage of managers	28%	3.10	2.17	
F50	Insufficiently planned Overseas Contingency Operations (OCO) funding	27%	3.07	2.27	
F51	Shortage of staff	26%	2.99	2.12	
F52	Contractor rework	26%	3.00	2.14	
F53	Deferred payments for scheduling earning fees, progress payments/performance-based payments	25%	3.08	2.20	$-1\sigma = 25\%$
F54	Effect of contract type on outlay rates	24%	2.99	2.17	
F55	Materiel/Systems Command Comptroller Withhold	24%	2.71	2.17	
F56	Awaiting PEO-level review and decision	24%	2.80	2.01	
F57	Termination liability	22%	2.72	2.17	
F58	Insufficient workplace tools/apps	22%	2.82	2.01	
F59	PEO-directed programming	21%	2.83	2.10	
F60	Slower burn rate than expected due to favorable Cost Performance Index	21%	2.77	1.95	
F61	PEO Withhold	20%	2.39	1.99	
F62	Preparing PEO-level review and decision	20%	2.66	1.53	
F63	Production line issues	19%	2.82	2.08	
F64	Labor disputes	10%	1.89	1.64	

FIGURE 3. IMPACT RATINGS ABOVE $\bar{x}$ IN AGGREGATE DESCENDING ORDER WITH RESPONDENT GROUP LOW AND HIGH RATINGS



to reduce the adverse effects of all three factors, the respondents recommended the "inclusion of more risk mitigation into contract award planning, more realistic timelines, more realistic plans, greater funding stability, reduction in bureaucratic obstacles, more synchronized internal processes, and better aligned accounting systems."

Factors Ranked One Standard Deviation Above the Mean (+1σ)

This next line of demarcation (Figure 3, factors F^4–F^9) included many contracting-related factors (i.e., Shortage of contracting officers (F^4), Contractor proposal prep delays (F^6), Request for Proposal (RFP) prep delays (F^8) and Source selection delays (F^9). Nearly all the factors showed the emergence of a more alarming σ between the individual respondent groups—as high as 18 percent in one case (i.e., Contractor proposal prep delays [F^6]). For this particular factor, procurement contracting officers (PCO) reported the highest impact, while PMs ranked it as the lowest. Senior staff cited that Shortage of contracting officers (F^4) created the highest impact, while PCOs reported it had the lowest impact. With a 7 percent σ, it was the lowest among all six factors in this grouping.

Given that six of the top nine factors were contract-specific factors that ranked above +1σ (Figure 3), it came as little surprise to see so many reinforcing comments surface.

- "Lack of experienced and qualified contract specialists . . .."
- "Alarmingly low personnel qualified . . . many unsure/lack guidance and experience . . . ."
- "Significantly stressed with overtime to complete all contracting actions prior to close of fiscal year."
- "Inadequate training . . . inordinate number of interns with very low experience in all career fields."
- "Lack of sufficient legal personnel trained in Acquisition."
- "Loss in brain trust and skill to develop complete, clear SOWs [Statements of Work] using proactive contract language."
- "SOW writing and the teaching of SOW writing classes is greatly left to contractors or support contractors, resulting in unclear language."

The highest frequency of occurrence was also associated with contracting-related factors (Figure 3). By far, the aggregate respondents rated Shortage of contracting officers (F^4) as the single highest factor among all 22 factors measured for frequency. Because the contracting activity timeline generally has lengthy durations, any disruption appears to have an unmistakable impact on contract award. Shortage of contracting officers (F^4) was seen as having the most significant impact. Several respondents said "multiple contracting actions were having compounding consequences."

The two remaining factors above +1σ Congressional mark (F^5) and OSD-directed RMD adjustment (F^7), had very low frequency of occurrences, but still reported a very high impact similar to CRA. When combining these with F^4, all three appear to be a strong antecedent force (or moderating factor) to the already time-consuming chain of contracting actions.

Factors Ranked Above $\bar{x}$

This final grouping (Figure 3, factors F^{10}–F^{31}) accounted for the remaining 22 impact factors. Perception polarities persisted, especially between two respondent groups—senior staff outside the program office and PMs inside program offices. For PMs in every case except one (i.e., Component-directed POM adjustment [F^{17}]), the impact factors ranked well below $\bar{x}$. In sharp contrast, senior staff, in every case except one (i.e., Component-directed POM adjustment [F^{17}]), stated the majority of the top 31 factors had the largest impact—or close to it—among all respondent groups.

Even though the remaining impact factors above $\bar{x}$ are still significant, the researchers shifted the focus to the presence of any strong correlations since factor couplings could be having a moderating effect and require a closer look.

Factors That Correlate

Table 3 summarizes the strongest and weakest factor correlations for all respondents queried. Several strong correlations surfaced for factors above $\bar{x}$. Changes in user requirements (F^{11}) and Changes in user priorities (F^{19}) were very strongly correlated. In three specific instances, two factors above $\bar{x}$ were very strongly correlated with three factors that fell below $\bar{x}$: Lack of experience levels in key acquisition functional areas (F^{27}) and Inadequate training (F^{48}); Lack of experience levels in key acquisition functional areas (F^{27}) and Tenure of PM and others in key positions (F^{46}); and DCMA administrative actions (F^{36}) and DCAA administrative actions (F^{22}). Three contract-related factors (F^{4}, F^{8}, and F^{9}) showed weaker correlations than expected. Whether a factor had a weak correlation doesn't mean it had any less importance, but any course of action intended to mitigate the presence of any impact factor strongly correlated with another should be weighed more heavily in any recommended action. For example, the turnover of PMs could be part of the experience quotient.

Factor Plotting

The researchers generated a scatter plot diagram (Figure 4) that punctuated how the 31 factors fluctuated between impact and frequency of occurrence. In some cases, the impact of certain factors occurred with low frequencies of occurrence. In other cases, the frequency of occurrence compounded the impacts.

TABLE 3. FACTOR CORRELATION COUPLING

r	r^2	Strongest Correlation Coefficients	Weakest Correlation
		Experience, Training, and Tenure:	F^{1} Late release of full obligation/budget authority due to CRA
.84	71%	F^{27} Key acquisition experience levels and F^{48} Inadequate training	F^{4} Shortage of contracting officers
.78	61%	F^{27} Key acquisition experience levels and F^{46} Tenure of PM and other key positions	F^{5} Congressional mark/rescission
		Administrative Actions:	F^{7} OSD-directed RMD adjustment
.81	76%	F^{36} DCMA and F^{22} DCAA	F^{8} RFP prep delays
.82	67%	F^{11} User requirements and F^{19} User priorities	F^{10} Unrealistic/overly optimistic spend plans
.70	49%	F^{19} User priorities and F^{13} Stakeholder requirements	F^{12} Changes to program acquisition strategy
		Contract-related Activities:	F^{15} Lack of decision authority
.71	50%	F^{6} Contractor proposal delay and F^{2} Contract negotiations delays	F^{16} Implementation of new OSD/Service policy
.70	49%	F^{3} Contract award delays and F^{2} Contract negotiations delays	F^{17} Component-directed POM adjustment
			F^{18} Awaiting reprogramming action
			F^{20} Realistic spend plans, but risks materialized
			F^{21} Program delays from prerequisite events
			F^{23} Unplanned Congressional adds to PB request
			F^{25} Expenditure contingent on hardware delivery
			F^{26} Loss of funding through reprogramming
			F^{29} Shortage of cost estimators
			F^{30} Shortage of business/finance personnel
			F^{31} Programmatic conflicts between government and prime contractor

The higher the %, the stronger the direction and strength of the linear relationship between the variables

Factors # 1 – 3 ≥ +2σ;

Factors # 4 – 9 ≥ +1σ

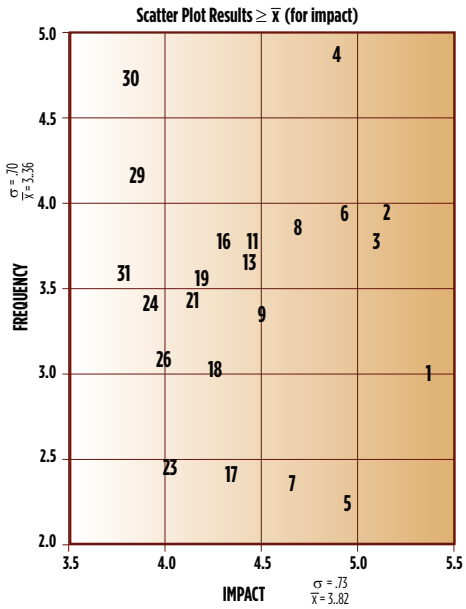
Factors # 10 – 31 ≥ $\bar{x}$

The research data results were rebased to a Likert-like scale for plotting the frequency and adverse impact response averages. The researchers included Factors F^{29}–F^{31} in Figure 4 because they only fall slightly below $\bar{x}$.

For the relationships that were co-linear (e.g., the most strongly correlated depicted in Table 3), the researchers explored whether they also behaved as strong predictors across the sample population. After investigating *t*-ratios (used with ACAT Level factors) and beta-weights (used

for the sample population), the researchers determined the relationships were not significantly co-linear enough to substantiate causation. Consequently, there was no merit in running any further regression that analyzed the factors as predictors. However, the researchers conducted another set of tests by modulating certain respondent demographics and holding constant.

FIGURE 4. SCATTER PLOT OF IMPACT FACTORS WITH FREQUENCY



≥ +2σ
≥ +1σ
≥ +x̄

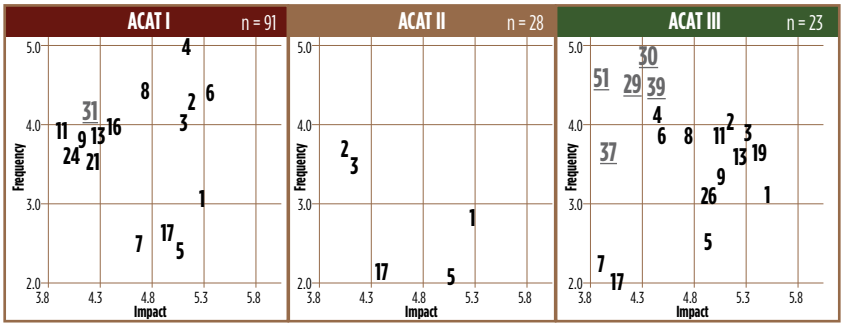
[1] Factor listed by rating of adverse impact, but not plotted by frequency. Frequency data not collected.

1 Late release of full obligation/budget authority due to CRA
2 Contract negotiations delays
3 Contract award delays
4 Shortage of contracting officers
5 Congressional mark
6 Contractor proposal prep delays
7 OSD-directed RMD adjustment
8 RFP prep delays
9 Source selection delays
10 Unrealistic/overly optimistic spend plans[1]
11 Changes in user requirements
12 Changes to program acquisition strategy[1]
13 Changes in other stakeholder requirements
14 Preparing DAE-level review and decision[1]
15 Lack of decision authority at expected levels[1]
16 Implementation of new OSD/Service policy
17 Component-directed POM adjustment
18 Awaiting reprogramming action
19 Changes in user priorities
20 Realistic spend plans, but risks materialized[1]
21 Program delays from additional development, testing, or other prerequisite events
22 DCAA administrative actions[1]
23 Unplanned Congressional adds to PB request
24 Use of undefinitized contract action delays
25 Expenditure contingent on hardware delivery[1]
26 Loss of funding through reprogramming action to higher priority requirements to PEO portfolio
27 Lack of experience levels in key acquisition functional areas[1]
28 Awaiting DAE-level review and decision[1]
29 Shortage of cost estimators
30 Shortage of business/finance personnel
31 Programmatic conflicts between government and prime contractor

Factor Plotting—Modulating ACAT Levels

Figure 5 shows how the factor rankings changed after isolating ACAT levels.

FIGURE 5. FACTOR RATINGS ≥ $\bar{x}$ ACAT LEVEL



MODULATION OF FACTORS

Factor Decrease:
- F^{18} Awaiting reprogramming action
- F^{19} Changes in user priorities
- F^{23} Unplanned Congressional adds to PB request
- F^{26} Loss of funding through reprogramming action to higher priority requirements to PEO portfolio

Factor Increase:
- F^{31} Programmatic conflicts between government and prime contractor

MODULATION OF FACTORS

Factor Decrease:
- F^{2} Contract negotiation delays
- F^{3} Contract award delays
- F^{4} Shortage of contracting officers
- F^{6} Contractor proposal prep delays
- F^{7} OSD-directed RMD adjustment
- F^{8} RFP prep delays
- F^{9} Source selection delays
- F^{11} Changes in user requirements
- F^{13} Changes in other stakeholder requirements
- F^{16} Implementation of new OSD/Service policy
- F^{18} Awaiting reprogramming action
- F^{19} Changes in user priorities
- F^{21} Program delays from prerequisite events
- F^{23} Unplanned Congressional adds to PB request
- F^{24} Use of undefinitized contract action delays

MODULATION OF FACTORS

Factor Decrease:
- F^{16} Implementation of new OSD/Service policy
- F^{18} Awaiting reprogramming action
- F^{19} Changes in user priorities
- F^{21} Program delays from prerequisite events
- F^{23} Unplanned Congressional adds to PB request
- F^{24} Use of undefinitized contract action delays

Factor Increase:
- F^{29} Shortage of Cost Estimators
- F^{30} Shortage of business/finance personnel
- F^{37} Redirection of contractor efforts
- F^{39} Shortage of technical/engineering/testing personnel
- F^{51} Shortage of staff

ACAT I. Funding and requirements factors (F^{18}, F^{19}, F^{23}, and F^{26}) previously ranked above $\bar{x}$ dropped below $\bar{x}$ while Contractor proposal prep delays (F^{6}) rose markedly to become the highest impact factor. Component-directed POM adjustment (F^{17}) made a noticeable shift to the top nine factors (or one standard deviation above the mean).

ACAT II. Fifteen of the factors previously ranked above $\bar{x}$ dropped below $\bar{x}$ (leaving only F^{1}, F^{2}, F^{3}, and F^{17}). Four of the factors that fell below $\bar{x}$ included contracting-related factors (F^{4}, F^{6}, F^{8}, and F^{9}).

ACAT III. Six of the factors (F^{16}, F^{18}, F^{19}, F^{21}, F^{23}, and F^{24}) previously ranked above $\bar{x}$ dropped below $\bar{x}$. Shortages of personnel (F^{29}, F^{30}, F^{39}, and F^{51}) and Redirection of contractor efforts (F^{37}) became more dominating issues for the respondents. Changes in user priorities (F^{19}), Changes in other stakeholder requirements (F^{13}), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F^{26}) all moved significantly above $\bar{x}$.

What does this mean? The more detailed differentiation seen in the scatter plots gives additional insight into the factors that would benefit from a more focused investigation of each ACAT. In some cases, reducing frequency of occurrence or perhaps instituting more early warning metrics could have a marked effect in reducing any adverse impacts.

Factor Plotting—Modulating Service Components and DoD

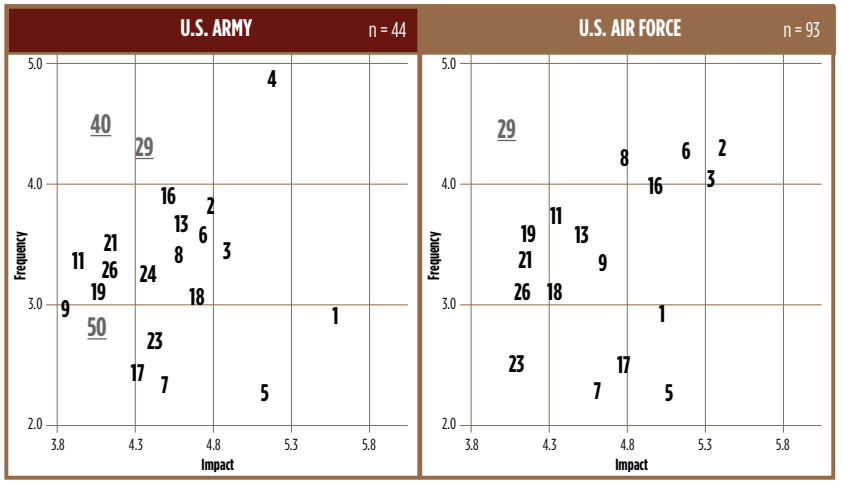
Figure 6 shows how the factor rankings changed after isolating Service Components.

U.S. Army. No factors fell below $\bar{x}$. The only component where factors moved above $\bar{x}$ was Shortage of auditors (F^{40}) and Insufficiently planned Overseas Contingency Operations (OCO) funding (F^{50}). Based on historical information, OCO funding will most likely continue to present challenges since contingency funding needs are less predictable during a wartime footing.

U.S. Air Force. Shortage of contracting officers (F^{4}) and Use of undefinitized contract action delays (F^{24}) both dropped below $\bar{x}$. Even though Shortage of contracting officers moved, there were no companion drops in contracting-related factors.

U.S. Navy. Six factors dropped below $\bar{x}$. Implementation of new OSD/Service Policy (F^{16}), Awaiting reprogramming action (F^{18}), Changes in user priorities (F^{19}), Unplanned Congressional adds to PB request (F^{23}), Use of undefinitized contract action delays (F^{24}), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F^{26}) became less of an impact. For Navy respondents, there was no notable movement in the top six contracting-related factor collective.

FIGURE 6. FACTOR RATINGS ≥ $\bar{x}$ BY COMPONENT

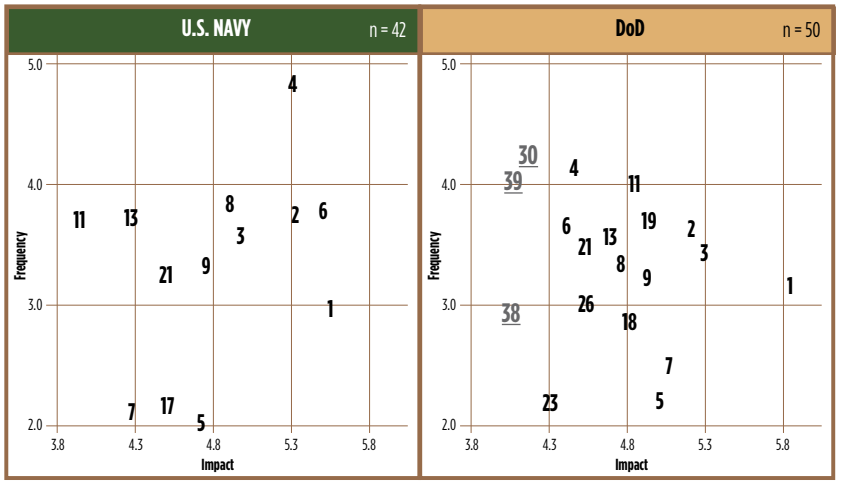


Factor Increase:

- F[40] Shortage of auditors
- F[50] Insufficiently planned OCO funding

Factor Decrease:

- F[4] Shortage of contracting officers
- F[24] Use of undefinitized contract action delays



Factor Decrease:

- F[16] Implementation of new OSD/Service policy
- F[18] Awaiting reprogramming action
- F[19] Changes in user priorities
- F[23] Unplanned Congressional adds to PB request
- F[24] Use of undefinitized contract action delays
- F[26] Loss of funding through reprogramming action to higher priority requirements to PEO portfolio

Factor Decrease:

- F[16] Implementation of new OSD/Service policy
- F[17] Component-directed POM adjustment
- F[24] Use of undefinitized contract action delays

Factor Increase:

- F[30] Shortage of business/finance personnel
- F[38] OSD Comptroller Withhold
- F[39] Shortage of technical/engineering/testing personnel

DoD. Three factors fell below $\bar{x}$ (i.e., Implementation of new OSD/Service policy [F^{16}], Component-directed POM adjustment [F^{17}], and Use of undefinitized contract action delays [F^{24}]), while three factors rose above $\bar{x}$: OSD Comptroller Withhold (F^{38}), Shortage of business/finance personnel (F^{30}), and Shortage of technical/engineering/test personnel (F^{39}).

What does this mean? The Army was the only one of the four groupings that was significantly affected by Use of undefinitized contract action delays (F^{24}); and DoD was the only one of the four groupings that was significantly affected by OSD Comptroller Withhold (F^{38}), Shortage of business/finance personnel (F^{30}), and Shortage of technical/engineering/test personnel (F^{39}).

Factor Plotting—Modulating Respondent Groups

Figure 7 shows how the factor rankings changed after isolating the respondent groups.

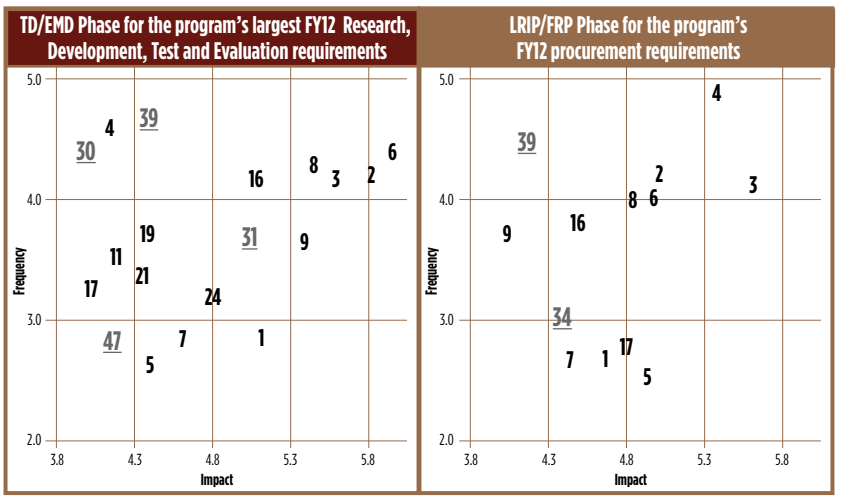
Program Office. Six factors dropped below $\bar{x}$: Awaiting reprogramming action (F^{18}), Changes in user priorities (F^{19}), Program delays from additional development, testing, or other prerequisite events (F^{21}), Unplanned Congressional adds to PB request (F^{23}), Use of undefinitized contract action delays (F^{24}), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F^{26}). No factors fell below $\bar{x}$.

PEO. Use of undefinitized contract action delays (F^{24}) fell below $\bar{x}$, while four factors rose above $\bar{x}$: Shortage of cost estimators (F^{29}), Shortage of business/finance personnel (F^{30}), Component Comptroller Withhold (F^{35}), and Insufficiently planned OCO funding (F^{50}).

Senior OSD Staff. Awaiting reprogramming action (F^{18}) fell below $\bar{x}$ while 13 factors rose above $\bar{x}$.

For PEO and senior OSD staff, personnel shortages (F^{29}, F^{30}, F^{20}, and F^{40}) became more dominant while Awaiting reprogramming action (F^{18}) became less dominant for program office and senior OSD staff personnel. Of the three groupings in this particular case, nowhere were there more factor increases than for senior OSD staff personnel. The rise in Unobligated prior year funding not adequately factored (F^{34}), SAE/CAE/

FIGURE 7. FACTOR RATINGS ≥ $\bar{x}$ WHEN NEGOTIATED CONTRACT COSTS WERE LOWER THAN COSTS PROJECTED



Factor Decrease:
- F[13] Changes in other stakeholder requirements
- F[18] Awaiting reprogramming action
- F[23] Unplanned Congressional adds to PB request
- F[26] Loss of funding through reprogramming action to higher priority requirements to PEO portfolio

Factor Increase:
- F[30] Shortage of business/finance personnel
- F[31] Programmatic conflicts between government and prime contractor
- F[39] Shortage of technical/engineering/testing personnel
- F[47] Holding award/incentive fees in commitment for future obligation

Factor Decrease:
- F[11] Changes in user requirements
- F[13] Changes in other stakeholder requirements
- F[18] Awaiting reprogramming action
- F[19] Changes in user priorities
- F[21] Program delays from prerequisite events
- F[23] Unplanned Congressional adds to PB request
- F[24] Use of undefinitized contract action delays
- F[26] Loss of funding through reprogramming action to higher priority requirements to PEO portfolio

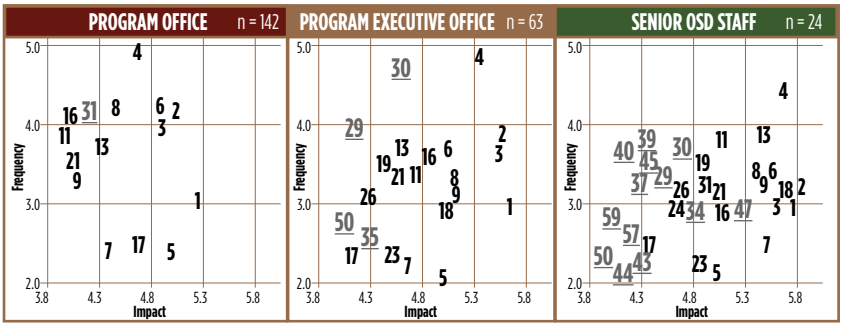
Factor Increase:
- F[54] Unobligated prior year funding not adequately factored
- F[39] Shortage of technical/engineering/testing personnel

Component-directed reprogramming (F[43]), and PEO-directed programming (F[59]) seemed intuitive since senior staff may see first-hand the longer time it takes for program managers to react to changes in their plans. However, it was very interesting to note the disparities between how senior OSD staff personnel responded to survey queries regarding the major impediments to meeting OSD's Obligation and Expenditure rate goals versus the responses from program office personnel, especially shortage of personnel and contract-specific factors (i.e., Changes in systems specs (F[45]) and Redirection of contractor efforts (F[37]). What does this mean? This wide perception disparity deserves a more intensive understanding since it could be creating false perceptions that could lead to misrepresented positions and even unsubstantiated decisions.

Factor Plotting—Modulating Program Phase and Cost Projections

Figure 8 shows how the factor rankings changed after modulating by program phase when their negotiated contract costs were significantly lower than projections.

FIGURE 8. FACTOR RATINGS ≥ $\bar{x}$ BY POSITION



Factor Decrease:
- F[18] Awaiting reprogramming action
- F[19] Changes in user priorities
- F[21] Program delays from prerequisite events
- F[23] Unplanned Congressional adds to PB request
- F[24] Use of undefinitized contract action delays
- F[26] Loss of funding through reprogramming action to higher priority requirements to PEO portfolio

Factor Decrease:
- F[24] Use of undefinitized contract action delays

Factor Increase:
- F[29] Shortage of cost estimators
- F[30] Shortage of business/finance personnel
- F[35] Component Comptroller Withhold
- F[50] Insufficiently planned OCO funding

Factor Decrease:
- F[18] Awaiting reprogramming action

Factor Increase:
- F[29] Shortage of cost estimators
- F[30] Shortage of business/finance personnel
- F[34] Unobligated prior year funding not adequately factored
- F[37] Redirection of contractor efforts
- F[39] Shortage of technical/engineering/testing personnel
- F[40] Shortage of auditors
- F[43] SAE/CAE/Component-directed reprogramming
- F[44] Rescission
- F[45] Changes in systems specs
- F[47] Holding award/incentive fees in commitment for future obligation
- F[50] Insufficiently planned OCO funding
- F[57] Termination liability
- F[59] PEO-directed programming

Development Phase (Technology Development [TD] and Engineering, Manufacturing, and Development [EMD]). Four factors dropped below $\bar{x}$, including Changes in other stakeholder requirements (F[13]), Awaiting reprogramming action (F[18]), Unplanned Congressional adds to PB request (F[23]), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F[26]). Four factors rose above $\bar{x}$, including Shortage of business/finance personnel (F[30]), Programmatic conflicts between government and prime

contractor (F^{31}), Shortage of technical/engineering/test personnel (F^{39}), and Holding award/incentive fees in commitment for future obligation (F^{47}). In two cases, Programmatic conflicts between government and prime contractor (F^{31}) and Implementation of new OSD policy (F^{16}) made a noticeable shift to the top nine factors (or one standard deviation above the mean).

Procurement Phase (Low Rate Initial Production [LRIP] and Full Rate Production [FRP]). Eight of the factors that previously ranked above $\bar{x}$ dropped below $\bar{x}$. The majority of the movement was seen in factors involving program delays, and funding and requirements changes. The factors involving program delays included Program delays from additional development, testing, or other prerequisite events (F^{21}), and Use of undefinitized contract action delays (F^{24}). The factors involving funding delays included Unplanned Congressional adds to PB requests (F^{23}), and Awaiting reprogramming action (F^{18}). The factors involving requirements changes included Changes in user requirements (F^{11}), Changes in other stakeholder requirements (F^{13}), Changes in user priorities (F^{19}), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F^{26}). Both Unobligated prior year funding not adequately factored (F^{34}) and Shortage of technical, engineering, and test personnel (F^{39}) rose above $\bar{x}$.

In both phases, Changes in other stakeholder requirements (F^{13}), Awaiting reprogramming action (F^{18}), Unplanned Congressional adds to PB requests (F^{23}), and Loss of funding through reprogramming action to higher priority requirements to PEO portfolio (F^{26}) fell below $\bar{x}$. In the context of modulating by program phase, the researchers found that any factor movement was negligible when costs met or exceeded projections.

What does this mean? Changes in user requirements (F^{11}) could potentially be more stable during the production phase and no longer become a factor. However, the emergence of Programmatic conflicts between government and prime contractor (F^{31}) during the development phase could perhaps be the sign of competing motivations between DoD and industry as well as more prominent technical and schedule risks. All three could result in programmatic delays.

Respondent Comments Regarding the Factors

The respondents were also asked several open-ended questions about whether they found the use of metrics helpful in better meeting OSD goals as well as any process improvements they would recommend. They stated the metrics making a difference for them included "real-time monitoring, frequent reviews, tight coupling to contractor actions and milestones, and realistic spend plans." When asked about any necessary improvements to current processes, the respondents recommended including a CRA duration variable that readjusted expectations, establishing more realistic program goals, ensuring more funding stability, reducing bureaucratic obstacles and streamlining more

FIGURE 9. SAMPLING OF RESPONDENT COMMENTS

X_1 Personnel, Tools & Training	*"Takes too long to get Acquisition Strategies and Acquisition Plans written and approved."* *"Personnel do not have experience with the subject matter."*
X_2 Contracting Activities	*"Inadequate proposals, protracted negotiations, lengthy audits, and lengthy pre-award processes."*
X_3 Requirements Stability	*"Had to defer/re-prioritize requirements execution and carry forward funding to cover cutbacks/shortfall."* *"Changes in requirements precipitated by other stakeholders' actions and ill-defined requirements."* *"User leadership routinely changes requirement & priorities."*
X_5 Business Ops	*"MIPR [Military Interdepartmental Purchase Request] billing process can delay expenditures from 90 to 120 days."* *"Delays in negotiating best deal for gov't and sometimes delays in getting acceptable proposals."*
X_6 Senior-level Execution Reviews	*"Extensive reviews, too long to get decision briefs through oversight layers—not always value added."* *"Multiple instances where milestone documentation took upwards of 9 months to a year to get approved."*
X_7 Funding Realities	*"The problem isn't unrealistic or overly optimistic spend plans as much as it's not knowing when funds will be appropriated and how much will be apportioned by the executing organization."*

outdated processes, forging greater cooperation between government and industry, and synchronizing disparate accounting systems used in Obligation and Expenditure reporting.

The respondents provided a number of additional qualitative comments that reinforced the quantitative data, especially for the factors above $\geq \overline{x}$ that were causing obligation rate interference.

Recommendations

What next? Based on the research findings presented in this article, a number of impact factors above $\overline{x}$, if sufficiently addressed, could help lower the barriers to the attainment of OSD's Obligation and Expenditure rate goals. Hence, the researchers offer the following recommendations:

- Institute an Obligation and Expenditure baseline adjustment for programs affected by any funding delay or limitation (especially CRA), then measure a program's progress to that revised adjustment.

- More thoroughly review the entire contracting action value chain. Look closely at efficiency opportunities along the review and decision cycle continuum, especially from the time an RFP is developed to the time a contract is let. Set reasonable time thresholds with triggers that afford more proactive measures by PMs—and confirm productivity.

- Establish a recurring communication forum among key stakeholders, especially PMs and OSD, to dialogue more frequently and eliminate perception gaps that could be creating counterproductive actions and misconceptions.

- Track requirement changes throughout a program's life and look more strategically at the effects on program execution and accompanying Acquisition Program Baselines. Despite ACAT levels, an obvious ripple effect is associated with any substantive change in program content across a program's life that should be codified more comprehensively. However, there are also issues associated with different ACAT levels, which must be noted.

- Review the program review cycle and streamline wherever possible. Checks and balances within the DoD's acquisition community have always been a vital constituent component of program execution, but every review should have a distinctive purpose, exit criteria, and associated suspense date that is just as material and credible.

- Build and maintain realistic spend plans, measure against them, account for contingencies, and make adjustments with required frequency due to real world realities. Since spend plans are subjected to so many real world programmatic eventualities, updating them is vital. Collaborate with senior leadership early enough about required adjustments to avoid more draconian measures later.

- Validate the key personnel shortage areas and recognize the time it takes to rebuild those experience levels.

- Nurture experience in key functional areas with strong catalysts such as disciplined on-the-job training, programs, mentoring, and guidance. With the recent surge of contracting specialist interns, their progress as a group should be measured more carefully.

- Evaluate the real effects of reprogramming action or realignment of future budget decisions before any corrective action is taken.

- Conduct a wholesale review of the program execution metrics currently in place and determine their usefulness and effectiveness. What are they actually measuring? How are these data (metrics) used and are they worth collecting? Consolidate whenever practical and eliminate the data (metrics) that have outlived their usefulness.

- Encourage innovation and avoid the "bookkeeping process" as RAND Corporation found in a recent study that could be limiting improvements championed by PMs (Blickstein & Nemfakos, 2009).

Summary

On Feb. 5, 2013, the authors presented the study results discussed in this article to Assistant Secretary of Defense for Acquisition Katrina McFarland and other key OSD senior staff. With the metrics she plans to institute with *Better Buying Power (BBP) 2.0,* DoD will have another means to address many of the impact factors discussed herein and a host of other variables that could be encumbering program execution expectations.

On Sept. 10, 2012, Under Secretary of Defense for Acquisition, Technology and Logistics Frank Kendall, and Under Secretary of Defense (Comptroller) Robert F. Hale, jointly signed a memorandum that listed six tenets that could help combat some of the same factors discussed in this article regarding the disposition of DoD's unobligated funds (DoD, 2012). Over time, realization of these tenets might also reduce perception disparity gaps among the key personnel that have a hand in ensuring our warfighters continue to get the weapon systems they need—and on time—to best support our national military strategy.

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